REMARKS

Claims 1, 5-9, 16, 17, 19 and 21-31 were pending. Claim 1 is amended by incorporating the features of claims 21 and 22. Claims 21, 22 and 28-31 are cancelled. Now pending are claims 1, 5-9, 16, 17, 19, 20, 23-27. No new matter is added.

Claim 7 remains rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. (Office Action, page 2).

The Office Action states that "[t]he recitation is very confusing, as Gnetum itself is a vegetable, and it is not clear whether the 50% ethanol extract of Gnetum is the vegetable extract or the 50% ethanol extract of Gnetum has to be added and mixed with another vegetable extract."

The applicant respectfully disagrees. It is clear from the description in 3rd paragraph on page 13 through 3rd paragraph on page 14 as well as embodiment III-1 on page 31 of the instant specification that the 50% ethanol extract of Gnetum is added and mixed with another vegetable extract. It is respectfully requested that the rejection be reconsidered and withdrawn.

Claims 1, 5, 7-9, 16, 17, and 19 remain rejected, and claim 21-31 are newly rejected under 35 U.S.C. 103(a) as being unpatentable over Boralle et al (Oligostibenoids from Gnetum venosum, Phytochemistry, 34 (5): 1403-1407, 1993), in view of Berry (Cyclopropene fatty acids in Gnetum gnemon (L.) seeds and leaves, Journal of the Science of Food and Agriculture, (1980) Vol. 31, No. 7, pp. 657-662), and further in view of Iliya et al (Iliya et al, Stilbene derivatives from two species of Gnetaceae, Chem. Pharm. Bull. 50 (6) 796-801 (2002)), and Qi (Qi, Optimum for extraction processing of stilbene glucoside from Polygonum multiflorum, Zhongcaoyao (2002), 33(7), 609-611). (Office Action, pages 3-4)

The feature of the present invention lies in that (1) the extraction is done in 15-80 % polar organic solvent, (2) the seeds are dried at not higher than 100°C without converting starch in the seed into alpha-starch and (3) the extraction is done below 70°C. The cited references are clearly distinguished on the basis of these essential steps alone, so there is no need to add additional non-essential process steps, as explained below.

(1) 15-80 % polar organic solvent

When the extraction is done with 99 % ethanol under 60°C, spots of Rf value 0.15 for Gnemonoside A and 0.5 for Gnetin C were faintly recognized (see Comparison II-1 on page 22 of the specification). In addition, after heated reflection, the spot of 0.15 Rf value was found but that of 0.5 Rf value was faintly recognized, i.e., hard to obtain the desired extract (see comparison II-2 on page 23).

On the contrary, when the extraction was done with 16% ethanol, spots with similar size at 0.15 and 0.5 Rf value were found (Embodiment II-1 on page 23). The extraction with 40% ethanol showed the smaller spot at 0.15 Rf value than the large spot at 0.5 of Rf value (Embodiment II-2 on page 24). Similarly the extraction with 60 % ethanol resulted in that a spot at 0.15 Rf value was scarcely recognized while the spot at 0.5 Rf value was large (Embodiment II-3 on page 24). With 80% acetone, the spot at 0.15 Rf value was slightly recognized while the spot at 0.5 Rf value was large (Embodiment II-4 on page 25). When methanol was used for extraction from raw Gnetum fruit slices, water contained in the fruit was moved to the solvent and thus the spot at 0.5 Rf value was recognized (Embodiments I-1, II-6, on pages 17 and 25 respectively). Below is a table summarizing relationship of solvent concentration and level of spot observation.

Extraction	Solvent	Temp.	Rf 0.15 Spot	Rf 0.5 Spot	material
Com II-1	99%EtOH	rt	faint	faint	dried
Com II-2	99%EtOH	78°	small	faint	dried
Emb II-1	16%EtOH	rt	medium	medium	dried
Emb II-2	40%EtOH	50°	small	large	dried
Emb II-3	60%EtOH	rt	scarce	large	dried
Emb II-4	80%acetone	60°	slight	large	dried
Emb II-5	50%MeOH	rt	scarce	large	dried
Emb II-6	MeOH	40°	medium	medium	raw
Emb I-1	MeOH	65°		medium	raw
Emb I-2	50%EtOH	65°		large	raw

The table above clearly shows that if the solvent is 99% ethanol, Gnetin C of the interest was barely found, while 80% acetone as well as 16 % ethanol worked well to obtain the product of the interest. This indicates that enzymes do not work with polar solvent alone and they need

water to work. It is clear that aging, i.e., enzyme reaction occurred in aqueous extractants comprising water and 15-80 % polar organic solvent.

(2) Gnetum Fruit

When the Gnetum fruit dried at not higher than 100°C without converting starch in seed into alpha-starch or the raw Gnetum fruit was used for extraction, Gnetin C was obtained, while Emping which is produced by heating Gnetum seeds at not less than 100°C to convert starch inside the seeds into alpha-starch was used for the extraction with 50% ethanol, no spots at 0.5 Rf value was found and thus production of Gnetin C was not found (comparison I on page 20). Similar to the emping, when Gnetum seeds, which were roasted at 100°C to convert starch inside the seeds into alpha-starch, were extracted in the presence of β-glucosidase, Gnetin C was produced (embodiment II-12 on page 29). When Emping was extracted with 50% ethanol and then to the resulted the extract liquid, the insoluble matter from the Embodiment II-3 were added and stirred, the spot at 0.15 Rf value was able to be faintly recognized only , while the spot at 0.5 Rf value was large, i.e., Gnetin C was produced (Embodiment II-7 on page 26). See below table.

Extraction	Solvent	Temp.	Rf 0.15 Spot	Rf 0.5 Spot	material
Com I	50%EtOH	rt		ND	over 100°
Emb II-7	50%EtOH	rt	faint	large	Com I, Emb II-3
Emb II-12	22%EtOH	35°	faint	large	roasted 100°, glucosidase

These facts indicate that only Gnemonoside A exists in the seed and heating over 100°C inactivates co-existing β-glucosidase and thus resulting in no production of Gnetin C. Accordingly, it is clear that in order to product Gnetin C, it is necessary to handle the fruit not higher than 100°C to avoid inactivation of the enzyme and conversion to alpha-starch.

(3) Extraction Temperature

In the embodiment II-2, the starting material was immersed at room temperature for one day and stirred for 5 hours at 50°C. In the embodiment II-3, the starting material was immersed at room temperature for 7 days. In both embodiments, spots at 0.15 of Rf value were found (though the one in the former is a littler larger than the one in the latter) and as the temperature increases, enzyme reaction was accelerated and extraction time got shorter. Thus, the key for

aging suitable for enzyme reaction is to suitably set the extraction temperature (30°C -60°C) at which the enzyme optimally functions (1st and 2nd paragraphs on page 10, 1st paragraph on page 12, respectively).

Gnetum seed is rich in starch. When it is extracted over 70°C at which the starch starts to convert to alpha-starch, enzyme activity is lowered, water is absorbed and resulted in gelatinized paste. Once it becomes the paste, solid-liquid separation becomes difficult and thus yield of extract is lowered. Accordingly, the extraction should be conducted below 70°C.

None of the cited references either disclosed or suggested or taught these key features.

As admitted by the Examiner, Boralle et al do not explicitly teach using 15-80% EtOH or 50% EtOH to extract Gnetum gnemon seeds. In Boralle et al, G. venosum dried kernels are extracted by exhaustive percolation with EtOH to isolate stilbenoids containing Gnetin C except their glucosides (gnemonoside A etc). Boralle et al merely carried out the extraction of the kernels and isolation of the stilbenoids. It does not mention of the presence and action of glycosidase in the kernels which affect the production and yield of the product of the interest. In fact the isolation yield of Gnetin C is very low (0.062%) which is the same as the Comparison II-1 of the instant specification due to the absence of water. The low yield can be determined from the section EXPERIMENTAL on p.1407 of Boralle. Yield = 100 x Gunetum C(2a)/kernels = 100 x (150mg* + 10mg **)/260g ≈ 0.062% (*from the residue of $CHCl_3$; ** from the residue of MeOH-H_2O).

As to Barry, the office action stated that the kernels are eaten after removing the shell from the roasted or boiled nuts, which are mashed, molded into cakes, biscuits or pounded flat into keropok which are dried in the sun (thus not higher than 100 degree C without converting starch in the seed into alpha-starch). The applicant would like to bring the examiner's attention that the nuts are roasted or boiled and thus the starch inside the nuts is converted to alpha starch which is not suitable for the present invention, as stated above. In addition, in Barry, the pulverized kernels were extracted with petroleum ether which is a typical non-polar solvent. The solvent used in the present invention is a polar solvent. Further, Barry extracted cyclopropene fatty acid from G. gnemon seeds and merely introduced the seeds and leaves as foodstuffs. It does neither suggest nor teach existence of stilbenoids and various applications disclosed in the instant application. Thus, there is no basis to combine Barry with Boralle et al.

As to Iliya, et al, the extraction was done by using acetone and MeOH, resulting in very low yield due to lack of water in the extracting solvent. Also, nothing is mentioned in Iliya, et al. about the presence and the action of glucosidase in the root and stem which affect production of the stilbenoids of the interest. Iliya et al, neither disclosed nor suggested any suitable conditions for extraction from the Gnetum fruit of the present invention.

As to Qi et al., the extraction of stilbene glucoside from P. multiflorum with 50% EtOH is best under heat reflux for 30 minutes. The peak of resveratol (aglycon: produced by hydrolysis of stilbene glucoside), however, is not recognized on HPLC even the existence of water. This result clearly indicates that glucosidase did not work at all and the extraction depends solely on the penetration of the solvent, i.e., 50% EtOH, and the solubility of the stilbene glucoside which is most soluble in 50% EtOH. Since Qi et al did not consider the presence and the function of the glucosidase in P. multiflorum, glucosidase is inactivated under the heat reflux in solvent.

Thus, none of Barry, Iliya and Qi compensate for Boralle disclosure. And even if combined all together, Barry's non polar solvent and Qi's inactivated enzyme do not achieve the invention claimed in the instant application.

Accordingly, it is respectfully requested that the rejection be reconsidered and withdrawn. In view of the above amendment, applicant believes the pending application is in condition for allowance.

Any additional fees or overpayments due as a result of filing the present paper may be applied to Deposit Account No. 04-1105. It is respectfully submitted that all of the claims now remaining in this application are in condition for allowance, and such action is earnestly solicited.

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Respectfully submitted,

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